WHAT IS CLAIMED IS:

CLAIMS

1   1.   A system comprising:

2   a first client device;

3   a second client device;

4   a messaging server connected to the first and second client devices via a

5   communications network, the messaging server receiving an electronic

6   document intended for the second client device from the first client

7   device, verifying that the electronic document complies with a

8   business document model, and forwarding the electronic document to

9   the second client device when the compliance with the business

10   document model is verified.

1   2.   The system of claim 1 wherein the business document model is a hierarchical

2   structure definition.

1   3.   The system of claim 2 wherein the hierarchical structure definition is an

2   eXtensible Markup Language Document Type Definition comprising Document Type

3   Definition elements.

1   4.   An apparatus comprising:

2   an object modeler;

3   a model extractor, coupled to the object modeler, that extracts a document

4   model from the object modeler into an object database as a hierarchy

5   table;

6   a report generator, that generates a hierarchical structure definition from the

7   hierarchy table in the object database.

1 5. The apparatus of claim 4, further comprising:

2   a document analyzer allows the creation of a hierarchical document based on

3   the hierarchical structure definition.

1 6. The apparatus of claim 5, further comprising:

2   a validator that validates the compliance of the hierarchical document with the

3   hierarchical structure definition.

1 7. A method comprising:

2   modeling business documents in a modeling language as a business document

3   model;

4   generating a hierarchical structure definition from the business document

5   model.

1 8. The method of claim 7, wherein the modeling language is Uniform Modeling

2 Language.

1 9. The method of claim 8, wherein the hierarchical structure definition is an

2 eXtensible Markup Language Document Type Definition comprising Document Type

3 Definition elements.

1 10. The method of claim 8, wherein the hierarchical structure definition is an

2 eXtensible Markup Language schema.

1 11. A method comprising:

2   generating a hierarchical document from a hierarchical structure definition;

3   sending the hierarchical document to a client device or messaging server.

1   12.   The method of claim 11, wherein the hierarchical structure definition is an

2 eXtensible Markup Language Document Type Definition comprising Document Type

3 Definition elements.

1   13.   The method of claim 11, wherein the hierarchical structure definition is an

2 eXtensible Markup Language schema.

1   14.   A method comprising:

2   receiving a hierarchical document from a first client device destined for a

3   second client device;

4   comparing the hierarchical document with a hierarchical structure definition;

5   validating the hierarchical document if the hierarchical document matches the

6   hierarchical structure definition;

7   forwarding the hierarchical document to the second client device if the

8   hierarchical document is validated.

1   15.   The method of claim 14, wherein the hierarchical structure definition is an

2 eXtensible Markup Language Document Type Definition comprising Document Type

3 Definition elements.

1   16.   The method of claim 14, wherein the hierarchical structure definition is an

2 eXtensible Markup Language schema.

1   17.   A method comprising:

2   catagorizing business objects in a business model;

3   representing variations of common business objects in the business model;

4   defining data classes and attributes of business objects with in the business

5   model;

6   extracting the business model into an object database;

7   generating a hierarchical structure definition.

1   18.   The method of claim 17, wherein the hierarchical structure definition is an

2   eXtensible Markup Language Document Type Definition comprising Document Type

3   Definition elements.

1   19.   The method of claim 17, wherein the hierarchical structure definition is an

2   eXtensible Markup Language schema.

1   20.   The method of claim 18 further comprising:

2   coupling configuration attributes with the Document Type Definition

3   Elements as Document Type Definition attributes.

1   21.   The method of claim 20 further comprising:

2   displaying the hierarchical structure definition based on the coupled

3   configuration attributes.

1   22.   A computer readable medium, encoded with data and instructions, that when

2   executed by a computer is caused to perform processes comprising:

3   modeling business documents in a modeling language as a business document

4   model;

5   generating a hierarchical structure definition from the business document

6   model.

1   23.   The computer readable medium of claim 22, wherein the modeling language

2   is Uniform Modeling Language.

1   24.   The computer readable medium of claim 23, wherein the hierarchical structure

2   definition is an eXtensible Markup Language Document Type Definition comprising

3   Document Type Definition elements.

1   25.   The computer readable medium of claim 23, wherein the hierarchical structure

2   definition is an eXtensible Markup Language schema.

1   26.   A computer readable medium, encoded with data and instructions, that when

2   executed by a computer is caused to perform processes comprising:

3   generating a hierarchical document from a hierarchical structure definition;

4   sending the hierarchical document to a client device or messaging server.

1   27.   The computer readable medium of claim 26, wherein the hierarchical structure

2   definition is an eXtensible Markup Language Document Type Definition comprising

3   Document Type Definition elements.

1   28.   The computer readable medium of claim 26, wherein the hierarchical structure

2   definition is an eXtensible Markup Language schema.

1   29.   A computer readable medium, encoded with data and instructions, that when

2   executed by a computer is caused to perform processes comprising:

3   receiving a hierarchical document from a first client device destined for a

4   second client device;

5   comparing the hierarchical document with a hierarchical structure definition;

6   validating the hierarchical document if the hierarchical document matches the

7   hierarchical structure definition;

8   forwarding the hierarchical document to the second client device if the

9   hierarchical document is validated.

1   30.   The computer readable medium of claim 29, wherein the hierarchical structure

2   definition is an eXtensible Markup Language Document Type Definition comprising

3   Document Type Definition elements.

1   31.   The computer readable medium of claim 30, wherein the hierarchical structure

2   definition is an eXtensible Markup Language schema.

1   32.   A computer readable medium, encoded with data and instructions, that when

2   executed by a computer is caused to perform processes comprising:

3   catagorizing business objects in a business model;

4   representing variations of common business objects in the business model;

5   defining data classes and attributes of business objects with in the business

6   model;

7   extracting the business model into an object database;

8   generating a hierarchical structure definition.

1   33.   The computer readable medium of claim 32, wherein the hierarchical structure

2   definition is an eXtensible Markup Language Document Type Definition comprising

3   Document Type Definition elements.

1   34.   The computer readable medium of claim 32, wherein the hierarchical structure

2   definition is an eXtensible Markup Language schema.

1   35.   The computer readable medium of claim 33 further comprising:

2   coupling configuration attributes with the Document Type Definition

3   Elements as Document Type Definition attributes.

1   36.   The computer readable medium of claim 35 further comprising:

2   displaying the hierarchical structure definition based on the coupled

3   configuration attributes.

1   37.   A method comprising:

2   receiving a hierarchical structure definition comprising objects represented by

3   hierarchical structure definition elements with configuration attributes

4   and semantics corresponding to the hierarchical structure definition

5   elements, the hierarchical structure definition elements having a

6   hierarchical structure;

7   displaying the hierarchical structure of the hierarchical structure elements;

8   displaying the objects depicted as configured by the configuration attributes;

9   and

10   displaying the semantics.

1   38.   The method of claim 37, further comprising:

2   allowing the addition or editing of mapping information corresponding to the

3   objects.

1   39.   The method of claim 38, wherein the hierarchical structure definition is an

2   eXtensible Markup Language Document Type Definition and the hierarchical structure

3   definition elements are Document Type Definition elements.

1   40.   The method of claim 38, wherein the hierarchical structure definition is an

2   eXtensible Markup Language schema and the hierarchical structure definition elements are

3   eXtensible Markup Language elements.

1   41.   A computer readable medium, encoded with data and instructions, that when

2   executed by a computer is caused to perform processes comprising:

3   receiving a hierarchical structure definition comprising objects represented by

4   hierarchical structure definition elements with configuration attributes

5   and semantics corresponding to the hierarchical structure definition

6   elements, the hierarchical structure definition elements having a

7   hierarchical structure;

8   displaying the hierarchical structure of the hierarchical structure elements;

9   displaying the objects depicted as configured by the configuration attributes;

10   and

11   displaying the semantics.

1 42. The computer readable medium of claim 41, further comprising:

2   allowing the addition or editing of mapping information corresponding to the

3   objects.

1 43. The computer readable medium of claim 41, wherein the hierarchical structure

2 definition is an eXtensible Markup Language Document Type Definition and the hierarchical

3 structure definition elements are Document Type Definition elements.

1 44. The computer readable medium of claim 41, wherein the hierarchical structure

2 definition is an eXtensible Markup Language schema and the hierarchical structure definition

3 elements are eXtensible Markup Language elements.